

## Education

 **Technical University of Munich; University of Michigan**  **Student 2014 – 2017; 2022 – present**

- TUM Mechatronics, Robotics, and Biomechanics Engineering M.Sc., Environmental Engineering M.Sc.
- UM Mechanical Engineering B.Sc., Electrical Engineering Minor.

## Experience

 **BMW Exterior User Interface Concepts**  **Working Student 2023 – present**

- Modeling, electrical design, and programming for vehicle exterior panels.
- Code for use cases required at different events involving concept/show cars.

 **University of Michigan Precision Systems Design Lab**  **Research Engineer, IT Admin 2020 – 2022**

- Design, analysis, and fabrication of mechatronic flexure assemblies for more efficient nanopositioning performance with dimensional, stiffness, and thermal optimizations; primary use case of semiconductor wafer inspection allows for a tenfold reduction in inspection time (10 to 1 hr) and 4x reduction in cost (\$200k to \$50k) compared to leading industry competitors.
- Head pose estimation via visual tracking with fiducial markers for preemptive motion sickness mitigation.
- Lightweight, high dexterity, 3DOF prosthetic wrist and hand with novel high-performance transmissions.

 **FlexDex Surgical**  **Lead R&D Engineer, IT Manager 2016 – 2020**

- Development of surgical instruments for MIS (Minimally Invasive Surgery) that match robotic effectiveness with 88% less average per case operation cost and without the multimillion-dollar upfront cost associated with robotic laparoscopy.
- Patent specifications and figures for provisional, utility, and CIP applications; managed materials and part qualifications.
- Device management, PDM installation, PBX and network setup, server administration, data security and backup.

 **Underwater Remotely Operated Vehicle**  **Mechanical Lead, Pilot 2012 – 2016**

- Mechanical team leadership involving design of the frame, manipulator, propulsion system, and buoyancy apparatus.

 **Solar Car Team**  **Aerodynamicist, CFD & FEA Analyst, Welder 2014 – 2017**

- Design of aerodynamic fairings for solar car body through an iterative CFD analysis (STAR-CCM+) and CAD (NX) process.
- Structural verification, especially large impact stress tests in FEA (ANSYS), and welding (TIG) for vehicle chassis.

 **Neuroprosthetics Team**  **Mechanical Lead 2015 – 2016**

- Design, assembly, and continual reassessment of modular, affordable, and myoelectric prosthetics for young children.
- Open-source solution serves as a 15-20x cheaper alternative to existing custom industry solutions.

 **Gemintek (捷萌)**  **Software Dev, Product Design Intern 2014**

- Hardware layout and software coding for handheld, compact Bluetooth cell tower antenna controller and analyzer.
- Field technician mobility upgrade and twofold service cost reduction via development of remote diagnostics app.

 **FIRST Robotics, VEX Robotics, NTU Biomimetic Robotics Lab**  **Mech Lead, Captain 2010 – 2014**

- International robotics competition in which teams are given 6 weeks to deliver a robot capable of completing the set of tasks specific to each year's challenge; focuses include autonomous code, drivetrain, and pneumatic projectile launcher systems.
- Biomimetic cat robot with Central Pattern Generator & SCARA with object recognition via force feedback; CAD & PCB drafting.

## Skills

- CAD/CFD/FEA: SolidWorks (CSWP Cert.), Inventor, ANSYS, NX, STAR-CCM+, CATIA V5/V6, Altium Designer, KiCad, Creo
- CS/IT: C/C++, C#, Java, Python, MATLAB, MS/O 365, SW PDM, PowerShell, web dev (HTML, CSS, PHP, SQL, JS), LabVIEW, Azure
- Languages: English (native), Mandarin (native), German (B2.1), Hokkien (B2.1), Norwegian (A1.2), Japanese (A1.2)

## Awards

- National I-Corp Program, NSF PFI Grant (2020, 2021-22)
- Edison Award for Surgery Robotics “Silver Award” (2019)
- Surgical Products' ESP Award, R&D 100 Finalist (2018)
- Bridgestone World Solar Challenge 2nd Place (2017)
- American Solar Challenge 1st Place (2016)
- Hackathon MHacks V Best VR App Award (2015)
- MATE Int'l ROV Competition Chris Nicholson “Flying Fish Award” (2014): “one individual's innovation & ingenuity”